RESPONSE

Remarks

Claims 1-20 are pending in the Application. Claim 1, 5, 10 and 16 are in independent format. Applicant now responds to the Examiner's assertions.

The Applicant asks the Examiner carefully consider the comments below with an open mind.   If the Examiner carefully and realistically considers the comments below with an open mind she will see that her rejections are improper, violate the holdings of many different court decisions and cannot be maintained.

REQUEST FOR INFORMATION

The Examiner requests information under 37 CFR 1.105 (regarding the portions of the disclosure that provide the written description and enablement support for the amended limitations in Claim 1, lines 3-4 and 6-11.

Support for Claim 1, lines 3-4, (variances of information signal related) is included on page 11 paragraphs 1 and 2.

Support for Claim 1, lines 6-11 (portion of the information signal with errors) is included on page 12, paragraphs 1 and 2, page 13, paragraph 4 through page 14, paragraph 4, page 17, paragraphs 1 through 4.

Section 102 Rejection

The Examiner rejects Claims 1-4, 12-15 and 16-20 under 35 U.S.C. §102(b) as being anticipated by Davida et al. ("On Enabling Secure Applications Through Off-Line Biometric Identification").

The Applicant traverses all of the Examiner's assertions, accepts all the Examiner's admissions, and responds as follows. Applicant specifically responds to selected assertions made by the Examiner, but still intends that <u>all</u> the assertions are traversed.

Section 102 Response

The Examiner asserts that regarding Claim 1, Davida et al. ("Davida") discloses the invention as claimed.

The Examiner is reminded that a claim is anticipated under 35 U.S.C. §102(b) <u>only if each and every element as set forth in the claim</u> is found either, expressly or inherently described, in a single prior art reference. *Vergegall Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

The Examiner is also reminded that to maintain a *prima case* of anticipation, the <u>identical invention must shown in as complete detail in a single prior art reference as is contained in the anticipated claim</u>. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989).

The cited prior art reference does not include each and every claim element and does not teach the identical invention as found in Claims 1-4, 12-15 and 16-20 as currently amended.

The Examiner required the Applicant to specifically point out why each and every element as set forth in the claims is not taught by the prior art reference.

The inventors, Dr. George Davida, a professor of computer science at the University of Wisconsin-Milwaukee, and Dr. Yair Frankel, who are also the authors of the prior art document and the co-inventors of the claimed invention and recognized cryptology experts, responds to the Examiner's rejections as follows:

"The prior art reference, Davida does not teach 'index generation' and dynamically generating 'one or more indices' but rather uses majority decoding to remove biometric signal errors for a template stored on a smartcard. Majority decoding and multiple indices represent two very different techniques providing for very different results and very different levels of protection.

In the prior art reference Davida majority decoding is used. Majority decoding takes multiple readings of a biometric signal to clean up the errors in a biometric signal. Upon completion of majority decoding a single value is obtained. The utility of majority decoding is to obtain an 'error free' biometric signal where the signal passes through a noisy channel. Note that Majority decoding is a many-to-one operation.

In direct contrast to the prior art reference, in the claimed invention, multiple indices are generated from a dynamically collected biometric. Unlike majority decoding, multiple indices are a one-to-many operation.

The prior art reference Davida teaches an offline system. However, the claimed invention use an online system in which indices are dynamically calculated

for a reading of a biometric and are compared to a verification template where the one or more calculated indices are used to determine an appropriate verification template or test against all templates stored in a secure database. Testing against all templates is not typically scalable and therefore a generated template index is used. Many biometric systems have the user submit a user name or other identifier (e.g., a pin, password, etc.) at the time of a biometric reading as a means to identify the appropriate template.

However, the claimed invention includes a passive system which therefore does not allow for a user to input any indexing information or identifiers but instead dynamically calculates indices to look up a template to determine an identity.

In the claimed invention, the multiple indices produce a method in which to find via a trusted link a verification template that is stored online in a secure database. As some calculated indices are error free and others are not. The claimed invention presents a new method to create template indices in a scalable manner for locating a biometric template stored in a secure database via a trusted link.

The prior art reference Davida teaches on 'off-line' system and the template is stored on a smartcard, therefore there is no need to calculate an index to find an online template as is taught by the claimed invention. Moreover, the prior art reference Davida does not anticipate the claimed passive system because in that prior art reference the user supplies a verification template for a biometric identifier on a smart card or other device and does not dynamically calculate a index to find it on a secure database via a trusted link."

The Applicant further responds as follows. The first element of Claim 1 recites, *"a body part input means for dynamically generating an information signal impressed with characteristics of a body part generated directly from the body part and not read from other inputs, wherein the information signal includes one or more generation errors based on variances of the body part;"*

The Application at page 10, para. 6, specifically teaches *"the user is uniquely identified with a reading of that user's biometric and without any other inputs from the user. Hence the user <u>does not</u> provide an ID number or other inputs via a keyboard or a smart card."*

In direct contrast to the claimed invention, the prior art reference requires a biometric be collected ahead of time and placed on a card, such as a smart card, that includes M biometric templates generated for the user and stored on the card ahead of time and prior to use for identification. The prior art reference specifically teaches in several places, "When a user presents a card..." (Davida, Sec. 4, para. 5, Sec. 5.1, para., 4). In direct contrast to the claimed invention, the prior art reference states "we assume that there is no requirement to hide's one biometric." (Davida, Sec. 4, para. 1.) In direct contrast to the claimed invention, the prior art reference also assumes that a stored biometric can be read from the smart card and processed in the amount of time it takes to dynamically scan in an store a biometric. Thus, dynamically scanning is not necessary. (Davida, Sec. 4, para. 1). The user's acquired biometric template to the biometric is generated during initialization" (and not read dynamically). (Davida, Sec. 1, para. 3).

The second element of Claim 1 teaches *"an index generation means for dynamically generating one or more indices from the information signal, wherein the one or more indices are generated by processing the information signal by selecting only a portion of the information signal such that generation errors based on variances of the body part are determined to be within a pre-determined error level*

within the selected portion of the information signal and generating the one or more indices using only the selected portion of the information signal, wherein the generated information signal and the one or more dynamically generated indices are not stored in the passive identification system and the one or more dynamically generated indices reveal no information about the identity of body part thereby providing perfect secrecy;"

In direct contrast to the claimed invention, the prior art reference teaches that a biometric is collected ahead of time and stored on a card (Davida, Sec. 4, para. 5, Sec. 5.1, para., 4). In the prior art reference, no indices are dynamically generated by processing a portion of an information signal for errors that is dynamically generated and from a body part since the prior art reference teaches the biometric itself is captured ahead of time and stored on a smart card and used later to determine an identity. In direct contrast to the claimed invention, the prior art reference states "<u>we assume that there is no requirement to hide's one biometric.</u>" (Davida, Sec. 4, para. 1.), thus *perfect secrecy* cannot be maintained by the prior art reference.

The last element of Claim 1 teaches *"a linking means to link via a trusted link at least one of the dynamically generated indices to an identity for the body part stored in a secure database."*

In direct contrast to the claimed invention, the prior art reference requires a biometric be collected ahead of time and stored on a device, such as a smart card, that includes M biometric templates generated for the user and stored on the card

ahead of time and prior to use for identification. The prior art reference specifically

teaches in several places, "When a user presents a card..." (Davida, Sec. 4, para. 5,

Sec. 5.1, para., 4). In direct contrast to the claimed invention, the prior art reference

teaches "this biometric authorization cannot have a direct (on-line) information

retrieval mechanism. This requirement means that the push model cannot be used,

because it requires a communication from the reader to the on-line database and

back." (Davida, Sec. 2.2, para. 1).

Finally, the prior art reference teaches "in order to remove the connectivity

requirements, an off-line biometric system is achieved by incorporating a biometric

template on a storage device/token (e.g., magnetic strip or smartcard) which

provides for a reliable storage medium, however, there are no security requirements

for the token. We therefore, will work with the pull model with the storage device,

containing sufficient information to validate the authenticity of the user's acquired

biometric template to the biometric generated during initialization." (Davida, Sec. 1,

para. 3). There is no requirement to hide one's biometric. (Davida, Sec. 4, para. 1).

Thus, the prior art reference cannot anticipate the claimed invention.

The same arguments apply for the other independent claims as were

discussed for Claim 1 above.

Based on the discussion above, the prior art reference <u>cannot</u> teach all of the

claim elements of the claimed invention and the claimed invention is not anticipated

under the holding of *Vergegall Bros.* The prior art reference also does not teach the

<u>identical invention</u> as the claimed invention and is not anticipated under the holding

of *Richardson* either. Therefore, the prior art reference cannot anticipate the

claimed invention and the 102(b) rejection is improper.

The Applicant now requests the Examiner immediately withdraw the §102(b)

rejections with respect to Claims 1-4, 12-15 and 16-20. Since these claims are not

anticipated they should be immediately allowable in their present form.

First Section 103 Rejection

The Examiner asserts Claims 5, 6 and 8-11 are rejected under U.S.C. §103(a)

as being unpatentable over Davida et al. (On Enabling Secure Applications Through

Off-line Biometric"). The Applicant traverses all of the Examiner's assertions,

accepts all the Examiner's admissions, and responds as follows. Applicant

specifically responds to selected assertions made by the Examiner, but still intends

that all the assertions are traversed.

First Section 103 Response

The Examiner is reminded that to establish *prima facie* obviousness of a

claimed invention in the first place, all the claim limitations must be taught or

suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974).

Claims 5, 6, and 8-11 as amended in combination with the amended

independent claims do not teach or suggest all of the claim limitations of the cited

prior art reference.

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Therefore, the Applicant now requests the Examiner immediately withdraw

the §103 rejections with respect to Claims 5, 6, and 8-11. Since these claim are not

obvious, they should be immediately allowable in its present form.

Second Section 103 Rejection

The Examiner asserts Claim 7 is rejected under U.S.C. §103(a) as being

unpatentable over Davida et al. (On Enabling Secure Applications Through Off-line

Biometric Identification") as applied to Claim 5 above, and further in view of Canetti

(*Towards Realizing Random Oracles: Hash Functions that Hide All Partial*

Information). The Applicant traverses all of the Examiner's assertions, accepts all

the Examiner's admissions, and responds as follows. Applicant specifically responds

to selected assertions made by the Examiner, but still intends that all the assertions

are traversed.

Second Section 103 Response

The arguments for Claims 1-6 and 8-20 are incorporated by reference. The

Examiner is reminded that to establish *prima facie* obviousness of a claimed

invention in the first place, all the claim limitations must be taught or suggested by

the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974).

Claims 7 as dependent on amended independent Claim 5 does not teach or suggest all of the claim limitations of the cited prior art reference. Therefore, the Applicant now requests the Examiner immediately withdraw the §103 rejections with respect to Claim 7. Since this claim is not obvious it should be immediately allowable in its present form.

CONCLUSION

The prior art made of record in the Office Action but not relied upon by the Examiner is no more pertinent to Applicant's invention than the cited references for the reasons given above. The Applicant therefore submits that all of the claims in their present form are immediately allowable and requests the Examiner withdraw the §102 and §103 rejections of the claims and pass all of the pending claims 1-20 to allowance.

Respectfully submitted.

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Dated: <u>June 21, 2007</u>

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